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Collective Wage Bargaining and the Role of Institutional Stability: A Cross-National Comparison of Macroeconomic Performance

Bernd Brandl (Durham University) and Christian Lyhne Ibsen (Michigan State University/University of Copenhagen)*

** Corresponding author: Bernd Brandl*

Durham University Business School

University of Durham, United Kingdom

Mill Hill Lane, Durham

DH1 3LB, UK

T: +44 (0)191 334 5756

F: +44 (0)191 334 5201

Email: bernd.brandl@durham.ac.uk.

Christian Lyhne Ibsen

Employment Relations Research Centre

University of Copenhagen, Denmark

Email: cli@faos.dk

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1. Introduction

Since the advent of the economic crisis in 2008, institutional reform of collective wage bargaining systems, i.e. of institutional structures and bargaining processes, has (re-)emerged on the agenda of public policy making in many countries. Especially in the European Union (EU) changes to collective bargaining systems gained a lot of momentum with the adoption of the Europe 2020 strategy in 2010 (e.g. Storm and Naastepad, 2015). In some EU member states, institutional reform was triggered by the European Commission (EC), the European Central Bank (ECB) and the International Monetary Fund (IMF). Some collective bargaining systems were considered obstacles to labour market adjustment and often institutional change of collective bargaining systems was explicitly aimed at solving the economic challenges of the time, i.e. high unemployment rates, by increasing labour cost-competitiveness through internal devaluation (e.g. Marginson, 2015).

However, reforms were not unchallenged and the effects of change were sometimes unexpected (e.g. Blanchard *et al.*, 2014; Brandl and Ibsen, 2017; Koukiadaki and Grimshaw, 2016). Moreover, numerous studies have argued that the internal devaluation strategy was the wrong medicine during a recession with depressed aggregate demand (e.g. Stockhammer, 2015; Onaran and Obst, 2016; van Gyes and Schulten, 2015).

Against the background of institutional reforms of collective bargaining systems this article investigates the effects of institutional change in collective bargaining systems on economic performance. We argue that institutional stability is an important factor for the efficacy of

collective wage bargaining and that changes to the institutional structures come with non-negligible macroeconomic costs. Theoretically, we argue that these costs arise due to the disruption of mutual trust between the actors involved in collective bargaining and the resulting increase of uncertainty among labour market actors. Building upon literature on the role of trust and certainty for economic efficacy (e.g. Uslaner, 2008; Farrell, 2009; Blanchard *et al*., 2014; Dow 2015; Reynaud, 2017), we propose that institutional stability is beneficial for trust building between all actors involved in collective bargaining by creating mutual expectations and certainty about behaviour which form the basis for stable wage determination and the provision of a common good wage policy. Institutional change might therefore lead to short-to-medium term collective action problems (Olson 1965), an increase in uncertainty (Hodgson, 1988) and increased transaction costs in labour markets (North, 1990). We test our hypotheses on data from 34 countries, from 1965 to 2014, on two key macroeconomic indicators – inflation and the unemployment rate – both of which are commonly used as performance indicators of collective bargaining systems (e.g. Calmfors and Driffill, 1988; Soskice, 1990; Flanagan, 1999; Blanchard and Philippon, 2004). While there are many scholars arguing that trust has a positive effect on collective bargaining, to our knowledge, this study is one of the few that actually estimates macroeconomic costs arising from loss of trust between bargaining actors due to institutional change.

The article is structured as follows. First, we review the relevant literature on collective bargaining systems and macroeconomic performance. Next, we discuss the importance of institutional stability, trust and certainty for the functioning of collective bargaining. We then present details on the data, methodological and empirical strategy and test our hypotheses. Finally, we conclude the analysis and discuss the implications of our study for policymakers attempting to reform labour markets institutions.

2. The efficacy of collective bargaining systems

In a letter on 1 February 1938 to President Roosevelt, John Maynard Keynes suggested the provision of institutional support for collective bargaining during the Great Depression (e.g. van Gyes and Schulten, 2015). The argument in favour of collective bargaining was that it enables a stabilization of wages and labour costs and thus reduces uncertainty about future costs and prices which in turn reduces uncertainty in the market. Moreover, via collective bargaining it is possible to align wage policies to other policy areas and to pursue a coordinated and encompassing wage policy, which is compatible with economic goals such as price stability and (un)employment (Crouch, 1993; Flanagan, 1999; Traxler *et al.*, 2001). There are many examples which show collective bargaining was a key element and component in some countries in successful economic policy making, for example in 'controlling' inflation in the 1970s (Brandl and Traxler, 2011), in meeting the Maastricht criteria (Iversen, 1999) and since the advent of the latest economic crisis in reducing unemployment (Marginson, 2015).

In the current economic policy context, one predominant direct key macroeconomic function of collective bargaining is to improve (labour cost) competiveness by ensuring that wages are aligned or even slightly below productivity increases, i.e. that they, on the one hand, produce wage moderation and on the other hand, ensure purchasing power, i.e. simultaneously foster economic and employment growth (e.g. Dustmann *et al*., 2014; Gabrisch and Staehr, 2014). This dual-aim poses a challenge for collective bargaining actors and processes and the success of it depends upon various institutional properties of collective bargaining systems (e.g. Traxler *et al.*, 2001). Specifically, based on Olson (1965), the dominant theoretical argument is that encompassing bargaining systems cannot externalize the negative consequences of pay increases, so they are forced to moderate them. Institutional differences in the degree of

encompassment of different bargaining systems are reflected in the degree of centralization (Bruno and Sachs, 1985) and coordination of collective bargaining (Soskice, 1990).

However, as recently stressed by scholars, the effects of collective bargaining depend upon additional contextual factors such as monetary policy, the organizational structure of actors and compliance between them, and the openness of the economy (Johnston, 2016). While there is no clear consensus in the literature on which bargaining system performs best, it is clear that institutional structures for bargaining matter and that changes and institutional reforms of collective bargaining systems are likely to affect macroeconomic aggregates (Flanagan, 1999; Aidt and Tzannatos 2008).

In previous debates, collective bargaining systems were analysed based on the implicit assumption that institutions could be changed with instant effects on the efficacy. With a few exceptions (Brandl and Ibsen 2017), largely missing in previous debates is the question of what effect institutional change itself has for the efficacy of collective bargaining systems. In this paper, therefore we further investigate the effect of institutional change of collective bargaining systems and the role of institutional stability in their efficacy by augmenting Brandl and Ibsen (2017). We argue that institutional change of collective bargaining systems comes with significant costs which might outweigh any potential benefits of the new institutional system in the short to medium term. We base this argument on the role of trust and certainty among actors involved in collective bargaining and we posit that institutional change may have a non-negligible negative effect on trust and certainty in collective bargaining.

3. The role of certainty and trust in collective bargaining

The role of uncertainty in and of markets is fundamental to Keynesian economics and institutions play an important role in reducing this uncertainty (Dow, 2015). This is because

institutions are able to reduce this uncertainty by facilitating the creation of reliable expectations and trust in the behaviour of others (Farrell, 2009) which in turn facilitates integrative exchange between actors in an uncertain environment (Reynaud, 2017). Numerous studies have suggested that trust has beneficial effects on various aspects of socioeconomic development (e.g. Zak and Knack, 2001; Beugelsdijk *et al*., 2004; Algan and Cahuc, 2013).

As regards the efficacy of collective bargaining, previous literature has continuously referred to and hypothesized on the importance of trust and certainty for cooperation and compliance which then is expected to lead to beneficial outcomes (e.g. Walton and McKersie, 1965; Ashenfelter and Johnson, 1969; Fox, 1974; Bryson, 2001; Blanchard *et al.*, 2014). However against that background, the role of trust for the efficacy of collective bargaining has never been addressed systematically and empirically. Thus this paper aims to close this gap by arguing that trust among bargaining actors enhances the efficacy of collective bargaining and that trust is dependent on a stable institutional environment.

Being aware of the vast and often controversial literature on the conceptual definition of trust (e.g. Beugelsdijk, 2008; Uslaner, 2008), we concentrate on a calculus-approach to trust which is defined as a belief that the actors involved in collective bargaining hold about their relationship. Trust is also a voluntary decision by an actor to rely on the action of another actor without having any (legal) certainty or clear measure of probability, but only the expectation, that the act of trust will pay off in the future (Coleman, 1990). Thus if an actor trusts (or not) another actor is a function of the expected gain and loss.

Farrell (2009) argues that mutual trust among actors can be a sufficient mechanism for coordination and compliance in order to ensure efficacy, i.e. the production of a public good, such as common wage policy. If compliance is low, one actor does not have the certainty that other actors will not defect. Such a situation is typical in collective bargaining systems in which many actors at different levels are involved (Traxler *et al*., 2001). Specifically, in collective

bargaining systems in which actors in different areas and at different levels exist we can differentiate between three main trust relationships between actors. Firstly, there is a trust relationship between the two sides in the employment relationship, i.e. between employers and unions, within each bargaining unit. Certainty that the counterpart will not defect or shirk enhances the probability of a mutually beneficial agreement. Second, there is a trust relationship between units at different levels – ranging from single-employer, multi-employer to cross-sectoral bargaining structures. On different levels, the rules and norms regarding coordination define further characteristics of the institutional structure of the bargaining systems. Third, there is a trust relationship horizontally, i.e. across bargaining units on the same level. It can certainly not be assumed that trust between actors along the three relationships is a given. Furthermore, it can also not be assumed to be stable over time. In fact, there are many sources for the disruption of trust which include changes in the institutional structure of collective bargaining systems themselves.

This proposition finds support within other strands of economic literature (e.g. Kingston and Caballero, 2009). For example, Blanchard and Philippon (2004) argue that in countries where wages are set by collective bargaining, institutional changes might lead to positive effects in the long run but are likely to cause negative effects on macroeconomic outcomes in the short and medium term. The authors argue that trade unions need to learn the new rules of the game, i.e. they need to discover 'the true state of the economy', and until then the efficacy of collective bargaining is impaired. Blanchard and Philippon (2004) argue further that trade unions' *speed of learning* of new rules of the game depends on the collective bargaining system itself and in particular on the prior degree of trust between all actors involved. Building upon Blanchard and Philippon's (2004) concept of trust and the speed of learning, we argue that an institutional change establishes a new situation in which all actors, including trade unions as well as

employers and employers' organisations, get to know the new rules of the game gradually and start re-building mutual trust.

Arguably, these negative effects of institutional change will most often be temporary, as actors readjust agency to new institutions, build up new mutual expectations of behaviour and foster trust again. Furthermore, institutional stability assumes trust in the sense that if actors trust each other and in the efficacy of the institutions there are little incentives to change the institutional structure. However, as the literature on trust has established, trust takes considerably longer to build up than to break down (e.g. Fox, 1974; Farrell, 2009). In contrast to previous studies focusing on the effects of different institutional configurations on economic performance, we therefore expect non-negligible initial costs from institutional changes when trust based on mutual expectations about behaviour breaks down.

Thus, many scholars have argued or assumed that trust has a positive effect on collective bargaining. In the following analysis, we build on these arguments and estimate the macroeconomic costs arising from loss of trust between bargaining actors due to institutional change. We define efficacy loss by the impaired ability of collective bargaining to minimise inflation and unemployment. We will investigate and measure directly the effect of institutional change on economic outcomes. This corresponds with standard macro-economic reasoning regarding the transaction-cost-reducing effect of trust (Beugelsdijk, 2006: 372). Without being able to go into details about the possibility of analysing trust directly in a macroeconomic framework of analyses (i.e. Beugelsdijk, 2008; Uslaner, 2008) we have to consider that the effect of institutional change might be driven by other (related) mechanisms such as changes in power relations (Brandl and Ibsen, 2017), institutional complementarity (Hall and Soskice, 2001) or increased levels of conflict because of information asymmetries (Hicks, 1932). However, we find that these alternative theoretical concepts are not contradictory but complementary to our theoretical concept.

4. Institutional change across countries and over time

In our empirical analysis on the effects of institutional change we use a sample which covers 34 countries and spans a period from 1965 to 2014. Thus our sample is significantly larger both in terms of the cross and time section compared to other macro analysis on the efficacy of different collective bargaining systems (e.g. Calmfors and Driffill, 1988; Soskice, 1990; Traxler *et al*., 2001, Johnston, 2016) and therefore enables us to draw general conclusions upon the effect of institutional change on the efficacy of collective bargaining. Table 1 documents the data on the predominant collective bargaining system and institutional change for the 34 countries.

- Table 1 about here -

The large number of countries covers a wide range of very different institutional structures and contextual factors in which collective bargaining takes place. The sample, moreover, covers changes in various directions: changes towards higher levels and more coordinated forms of collective bargaining structures and towards lower levels and more uncoordinated structures. As regards the context of collective bargaining, the long time period has the advantage that it covers different phases in the business cycles. Taken together, the sample thus allows a high degree of generalization of the results.

Different from previous studies, we are interested in the effects of change in the institutional structure of collective bargaining and not the effects of the different institutional structures. Thus the focal explanatory variable in this study is a measure of institutional change. We base our measure of institutional change of collective bargaining on changes in the categorization

of collective bargaining coordination by Visser (2017) which covers all of the three trust relationships. The categorization is based on variations in the level at which collective bargaining takes place, the actors involved and the extent of integrative interaction (coordination/governance) among actors and units within a particular institutional framework. According to the above theoretical reasoning, any change in a country from one of the above institutional structures to another, implies negative effects on the efficacy of collective bargaining. As differences between the categories are significant, a change from one category to another is also a significant change.

Any change from one category to another in one year to another implies that different actors, on different levels and with different relationships, are involved in collective bargaining. Consequently we operationalize our change measure by defining a change in a country from one year to another from a particular institutional structure to another as one change which is numerically expressed by 1. We moreover, hypothesize that there is an effect of the change on economic performance independent whether the change lead to an increased centralization or to a decentralization of collective bargaining. What matters is that the institutional structures and the relevant trust relationships among different actors have changed. Because of the change in the institutional structure actors involved need to learn the new rules of the game which includes the need to get to know each other and to start re-building mutual trust. Like Blanchard and Philippon (2004) we argue that until new rules have been learnt, the efficacy of collective bargaining is impaired independently from direction of the institutional change. However, we do not assume that all changes have the same effect and we also expect that in some countries and periods the negative effects of changes vary significantly. Against the background that in different countries actors are embedded in very different socio-political and economic environments, we also expect that the case specific effects of the institutional change might be very high in some cases and might be even absent in other cases. In fact, in some countries and

periods actors might build up mutual trust and restore the efficacy of collective bargaining almost instantly while in others the process is very long. However, it would go beyond the scope of this paper to analyse in sufficient detail the effects of case specific changes and therefore we concentrate on the aggregate level in order identify general effect. Nevertheless, as a robustness test we analyse asymmetries in the effect by differentiating between changes towards more coordinated and centralized institutional structures and vice versa.

We acknowledge the possibility that changes in the institutional structure of collective bargaining might be induced by weak economic performance, i.e. high unemployment and inflation. For this reason, reverse causality has to be taken into account in our modelling strategy and empirical analysis. We address this issue of reverse causality in different ways. We start by using the Granger causality test to gain evidence whether causality runs from institutional change to economic performance or the other way round. By analysing a wide set of 'usual' lag lengths (e.g., Campos and Nugent, 2002), which ranges from 2 to 6 years in our case, the Granger test provides us with some evidence on the direction of causality.

- Table 2 about here -

The results in Table 2 show that we cannot reject the hypothesis that institutional change does not Granger-cause inflation but we have to reject the hypothesis that inflation does not Granger cause change. Thus the Granger test suggests that Granger causality runs one-way from change to inflation. As regards unemployment the results of the Granger test do not provide any evidence for any clear unidirectional causality. In particular there is no support that changes and reforms of collective bargaining are Granger caused by developments in unemployment. Furthermore, as can be seen in Table 2, the test results are robust for a wide lag structure. Thus, the Granger tests support the argument that the reasons for changes and reforms of collective

bargaining systems can be rather found in an economic policy making '*Zeitgeist*' and not in well informed decision-making. This, of course, does not rule out that specific reforms were well informed. However, over a long period it appears that changes/reforms are not systematically implemented when inflation and/or unemployment is high or low. This in turn suggests that reforms might be explained by something else. Nevertheless, as will be discussed in the following, we further control and consider any potential issues arising due to endogeneity.

5. Modelling strategy and empirical analysis

In the following analysis we test the effect of institutional change on inflation and unemployment rates using panel regression models. Both dependent variables are derived from literature and have become standard indicators for the performance of collective bargaining systems (Calmfors and Driffill, 1988; Soskice, 1990; Iversen, 1999; Traxler *et al*., 2001; Blanchard and Philippon, 2004). In addition to the focal explanatory variables, i.e. institutional change, we include a comprehensive set of control variables, grouped in four categories.

The first category relates to the economic context and includes yearly (i) *economic* (GDP) *growth*, (ii) changes in the *exchange rate*s (to US Dollar), (iii) changes in the *terms of trade*, (iv) changes in the *openness* of the economies defined by countries' imports and exports, and (v) *inflation* for explaining the unemployment rate and vice versa the *unemployment rate* for inflation. All these variables aim to control for different economic environments in which collective bargaining and institutional change takes place. The second category of control variables relates to other aspects of the labour relations system and includes typical variables such as (i) trade *union density*, (ii) the *fragmentation* of the union system, and (iii) the existence and relevance of *extension* practices in collective bargaining. Closely related to the second

category is the third which relates to the institutional structure of collective bargaining coordination and includes, besides the focal *change* variable, the *coordination structure* and collective bargaining *coverage*.

The consideration of both variable coordination structure and coverage are crucial. Variable coordination structure captures the effect of the institutional structure itself. As shown in literature (Calmfors and Driffill, 1988; Soskice, 1990; Traxler *et al*., 2001) different institutional structures are associated with different economic performances. Therefore, the effect of the institutional structure before and after the change is likely to be different. Thus, the overall effect of the institutional change consists of the effect of the new institutional structure and the cost of the change itself. In this paper, we are primarily interested in the latter but need to control for differences in the effects of different institutional structures. We therefore have to include variable coordination structure. Furthermore, as collective bargaining coverage differs between countries and changes over time, the consideration of coverage is essential as it captures the effect of the changing relevance of collective bargaining on economic aggregates.

The fourth category of variables includes the remaining controls for other relevant factors. Besides a *constant* it includes lags of the dependent variables (Y_{t-n}) in order to control for serial-correlations, and a dummy variable for the structural break in *Germany* due to the unification. Furthermore, in order to tackle any potential effects from independent variables due to reverse causality, we enter the specification with a one period lag. The estimation result of this modelling strategy using Ordinary Least Square (OLS) is shown in model 1a for unemployment and 1b for inflation in Table 3.

In addition, we report the test by additional modelling strategies. In models 2a and 2b we report the test by applying a Two-Stage-Least-Square (TSLS) estimation approach. Even though the Granger causality test suggests that it is more likely that causality runs from institutional

change to economic outcomes, we still do not rule out any potential endogeneity. The TSLS estimation approach uses a change in *union authority* as an instrumental variable. Theoretically, a change in union authority can be expected to affect our key independent variable, i.e. the change in the coordination structure of collective bargaining, but does not directly affect inflation and unemployment. Because the choice of the instrumental variable is sensitive to the analysis, we investigated the correlations between variables *change, union authority, inflation* and *unemployment* which support the theoretical argument. However, in order to increase the validity of the instrument variable approach we also introduce twice-lagged level variables (Arellano 1989). In addition to that we estimate the previous model by considering a full set of country dummies, i.e. by applying a *fixed-effects* (FE) approach. Against the background that the Hausman-test provides some indication that a FE approach might be considered this estimation approach comes with some disadvantages because the institutional variables change little over time. More specifically, the introduction of FE removes the statistical and explanatory power of the institutional variables (e.g. Acemoglu *et al*., 2005). Thus, we report and discuss the models with FE as alternatives to the other models to support the robustness of the overall analysis. The results of the FE estimation approach is shown for the two dependent variables in models 3a and 3b.

As hypothesized, we expect that institutional change has a general, negative effect on the performance of collective bargaining independently from the direction of change. However, we do not expect that the magnitude of the effect is the same across countries and over time. In fact, we expect that the magnitude of the effect can vary for changes towards more uncoordinated and coordinated institutional structures. In models 4a and 4b we show the results of these tests.

In addition to the models shown in Table 3 and in order to test the robustness of all the models, different lag structures of the independent variables were tested and further control variables

were included. We also tested if the effect of the collective bargaining structure is non-linear. Further tests were made on the timings of change, i.e. in which exact year the collective bargaining structure is different. All robustness checks support the results shown. Table 3 documents the results of all modelling and estimation strategies for both dependent variables.

- Table 3 about here -

Beginning with the effect of institutional change, Table 3 shows that, for both dependent variables and in all model variations the hypotheses are supported. Changes to the institutional structure of collective bargaining explain a higher rate of unemployment and of inflation. This effect holds for all models and for both dependent variables even though the magnitude of the effect varies across the different models. This variation is due to the fact that very different estimation and modelling strategies are applied, all with advantages and disadvantages - as explained earlier - which not only makes comparisons between different models difficult (e.g. the magnitude) but is also reflected in the precision of the estimation of the different models for the two variables. Overall however, the evidence clearly supports the conclusion that institutional change in collective bargaining is costly and causes negative economic effects which should be considered in any attempt to reform collective bargaining. As regards the effects of the control variables for differences between countries regarding their industrial relations system, we can observe that the general effect of the institutional bargaining structure itself on economic outcomes is less clearly supported in the different models. The evidence shows that only for the unemployment rate some statistical evidence for a significant effect is observable for the institutional structure. In models (1a) and (2a) a significant negative coefficient can be observed which shows a negative relationship between coordinated collective bargaining and the unemployment level. This result supports previous literature on

the positive effects of coordinated collective bargaining structures on economic aggregates (e.g. Soskice, 1990; Traxler *et al*., 2001). For the models which consider fixed effects, i.e. models (3a) and (4b), no robust significant effect of the degree of coordination of collective bargaining can be observed. However, this mixed empirical support for the relevance of the institutional structures of collective bargaining on unemployment might be explained by the fact that much of the explanatory power of these effects is captured by the country FE. The fact that we do not find any robust significant effect of the bargaining structure for inflation might be due to collective bargaining affecting unemployment more directly than inflation. However, an in-depth investigation and a more detailed analysis of the effects of coordination structure – going beyond the scope of this study – would be needed to draw such conclusions. Regarding the other controls, we see that many other labour relations variables do not appear to have an impact on both dependent variables; only for the unemployment rate is there an effect of the level of collective bargaining coverage and trade union density. Turning to the economic controls, we see that only the effect of economic growth is significant and relatively robust over the different models in explaining unemployment and inflation. This result also confirms standard economic reasoning on the effect of growth on the two variables.

We argued that a change in any direction, e.g. towards a more centralized or decentralized institutional structure, leads to a negative effect on economic performance, as in either direction trust relationships among actors are disrupted. As this might be considered controversial, we tested the effects of different directions of change separately and report the results in model (4a) for unemployment and (4b) for inflation. As can be seen the test result confirm our hypothesis, as we are able to observe a positive effect on both dependent variables for changes in both directions. However, the effect of the change is not symmetrical as well as only significant at relatively high *p*-value. Even though the latter can be explained by the fact that the number of observations varies between changes towards decentral and central levels we

need to be cautious in our interpretation of the effects, especially regarding the effects on inflation. Nonetheless, for both dependent variables we see a stronger effect of changes towards more decentralized and uncoordinated forms of collective bargaining while the changes towards more centralized and coordinated institutional structures affect economic outcomes far less. This result can be explained by the fact that changes towards more centralized and coordinated forms of collective bargaining are usually associated with a decrease in the number of actors involved in collective bargaining and a lower number of actors reduces the complexity of collective bargaining and fosters trust building among actors. Thus a change towards more coordinated and centralized institutional structure of collective bargaining is as detrimental to the efficacy of collective bargaining as a change towards more uncoordinated and decentral institutional structures. Since the latter increases the number of actors, we argue that this increases uncertainty and makes trust building among a larger number of actors more difficult. In sum, we find that institutional change has a clear detrimental effect on unemployment and inflation and this effect is maintained regardless of whether the instability results from a change in the institutional structure towards more coordination or less. In line with other scholars (e.g. Farrell, 2009; Blanchard *et al*., 2014), we argue that the relationship between institutional changes in collective bargaining and macroeconomic performance works through a loss of trust amongst actors which in turn results in collective action problems and increased transaction costs in labour markets. However, the magnitude of this effect differs not only between countries but also between different directions of change. Given that the majority of changes in the past decades were made towards more decentralized and uncoordinated institutional structures of collective bargaining, changes might actually have left bargaining systems – at least temporally – impaired to deliver to economic stability.

6. Conclusions

In this article, we argued that change to collective bargaining systems, i.e. of institutional structures and processes of collective bargaining on wages, is costly because it leads to a disruption of mutual trust between actors which is a prerequisite for the provision of public goods, such as a wage strategy which is of mutual interest. The findings show that institutional change of collective bargaining systems is associated with an impaired efficacy and thus negative economic effects. The effects are strong and robust for both inflation and unemployment.

Our findings imply that standard reasoning on the need for institutional reform of collective bargaining clearly underestimates the costs of the reform itself. The results in this work also show that institutional change in the 'right' direction does not necessarily lead to better economic outcomes *per se*! Any positive effect from a better performing institutional structure is likely to be dampened by the cost of the change – at least in the short-to-medium term and in particular for changes towards more decentralized and uncoordinated institutional structures of collective bargaining. As the negative effect of change can be expected to be of a temporary nature – since mutual trust about expected behaviour can be rebuilt – as well as can be expected to vary between different countries the results of this study do not support any deadlock in institutional reform of collective bargaining systems. Especially because sometimes institutional change and short run instability is needed in order to achieve long term stability (e.g. Berggren *et al*., 2012). The same argument holds also for institution-building which is needed in order to reduce uncertainty in markets and achieve beneficial macroeconomic outcomes (e.g. Onaran and Stockhammer, 2016).

Academic and political debates about the economic effects of different collective bargaining systems have - until now - focused almost entirely on the effects of the institutional characteristics of the systems themselves. Even though there is no generally accepted

agreement upon which collective bargaining systems prove to be the ’best’ in terms of achieving beneficial macroeconomic outcomes (e.g. Blanchard *et al*., 2014), ‘selected’ studies were a source of institutional reform. However, the theoretical and empirical foundations for expecting beneficial economic results from these changes are not fully convincing. In part, this is due to the fact that the macroeconomic effect of change itself has largely been neglected in existing studies and therefore policy makers might have initiated institutional changes without assessing the full costs and benefits of the change.

Our findings therefore have clear policy implications. Policymakers should avoid reforming collective bargaining institutions if they do not know what the costs of the change are and should be very careful in following their reform agenda along the changing ’*Zeitgeist*’. In particular, and in line with Rodrik (1996), policymakers should consider the country specific context and not follow ‘one system fits all’ recommendations on institutional reform because, as shown in our analysis, the efficacy of collective bargaining institutions rest heavily on a stable institutional environment and stable relationships among actors which evolved over a (long) period of time.

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Tables

Table 1. *The institutional stability/instability of collective bargaining coordination in 34 countries; 1965-2014*

Country	Number of changes[1]	Since when[2]	Percentage of years with no change[3]	Predominant level[4]
Australia	6	1965	88%	company-wide/uncoordinated
Austria	1	1965	98%	industry-wide/coordinated
Belgium	8	1965	84%	industry-wide/coordinated
Bulgaria	3	1992	86%	company-wide/uncoordinated
Canada	2	1965	96%	company-wide/uncoordinated
Cyprus	0	1990	100%	company-wide/uncoordinated
Czech Republic	2	1990	92%	company-wide/uncoordinated
Denmark	13	1965	73%	industry-wide/coordinated
Estonia	0	1991	100%	company-wide/uncoordinated
Finland	19	1965	61%	industry-wide/coordinated
France	4	1965	92%	company-wide/uncoordinated
Germany	0	1965	100%	industry-wide/coordinated
Greece	2	1975	95%	industry-wide/uncoordinated
Hungary	1	1990	96%	company-wide/uncoordinated
Ireland	9	1965	82%	industry-wide/uncoordinated
Italy	5	1965	90%	company-wide/uncoordinated
Japan	2	1965	96%	industry-wide/coordinated
Latvia	0	1993	100%	company-wide/uncoordinated
Lithuania	0	1993	100%	company-wide/uncoordinated
Luxembourg	6	1965	88%	company-wide/coordinated
Malta	0	1990	100%	company-wide/uncoordinated
Netherlands	11	1965	78%	industry-wide/coordinated
New Zealand	7	1965	86%	company-wide/uncoordinated
Norway	22	1965	55%	industry-wide/coordinated
Poland	0	1990	100%	company-wide/uncoordinated
Portugal	13	1978	64%	industry-wide/uncoordinated
Romania	6	1993	71%	company-wide/uncoordinated
Slovakia	5	1990	79%	industry-wide/uncoordinated
Slovenia	4	1990	83%	industry-wide/coordinated
Spain	7	1977	81%	industry-wide/uncoordinated
Sweden	7	1965	86%	industry-wide/coordinated
Switzerland	1	1965	98%	industry-wide/coordinated
UK	7	1965	86%	company-wide/uncoordinated
USA	2	1965	96%	company-wide/uncoordinated

Note: [1]Shows how often the structure of coordination of collective bargaining was changed. [2]Shows since when data is available. [3]Shows the time (in percentages) in which there was no change of collective bargaining coordination. [4]Shows the most frequent coordination structure during the period of analysis. Data source: Visser (2017).

Table 2. *Granger causality tests between institutional change and economic outcomes*

		Lags: 2		**Lags: 4**		**Lags: 6**
Null Hypothesis:	***NxT***	***F-Statistic***	***Obs***	***F-Statistic***	***NxT***	***F-Statistic***
Change does not Granger Cause *Unemployment*	1052	0.5378	940	0.4802	869	0.9072
Unemployment does not Granger Cause *Change*		1.4698		0.6345		0.8823
Change does not Granger Cause *Inflation*	1057	5.9548***	941	3.1116**	869	1.9772*
Inflation does not Granger Cause *Change*		0.1280		0.1680		0.1704

Note: The *F*-statistics are the Wald statistics for the joint hypothesis for each equation. ***$\alpha \leq .01$; ** $\alpha \leq .05$, * $\alpha \leq .1$. *N x T*: number of observations.

Table 3. *The effects of institutional change on unemployment and inflation, 34 countries, 1965-2014*

Dependent variable:	**Unemployment rate**				**Inflation**			
Model:	**(1a)**	**(2a)**	**(3a)**	**(4a)**	**(1b)**	**(2b)**	**(3b)**	**(4b)**
Collective bargaining:								
Change	0.1009*	0.9357***	0.2646**		0.1995***	0.6753**	0.9015*	
	(0.0587)	(0.3126)	(0.1250)		(0.0738)	(0.3255)	(0.5328)	
Change central				0.9826**				0.87876*
				(0.5318)				(0.5343)
Change decentral				1.0784***				0.9213
				(0.3041)				(0.6210)
Coordination structure	-	-	-0.0586*	0.0651***	-0.0130	-0.0199*	-0.0377	-0.0346
	0.0727***	0.0396***	(0.0313)	(0.0233)	(0.0227)	(0.0110)	(0.0263)	(0.0358)
	(0.0192)	(0.0144)						
Coverage	0.0025**	-0.0008	0.0070**	-0.0281*	-0.0003	-0.0003	0.0034	0.0024
	(0.0012)	(0.0006)	(0.0034)	(0.0160)	(0.0015)	(0.0004)	(0.0102)	(0.0130)
Labour relations:								
Union density	0.0441***	0.0122**	0.0185	0.0976*	-0.0064	0.0058	0.0982	0.0975
	(0.0120)	(0.0063)	(0.0218)	(0.0570)	(0.0148)	(0.0048)	(0.0670)	(0.0683)
Fragmentation	0.0002	-0.0034	-0.133***	-0.1470	0.0099	-0.0029	0.2607	0.2595
	(0.0109)	(0.0051)	(0.0358)	(0.1292)	(0.0145)	(0.0040)	(0.1675)	(0.1676)
Extension	0.0452*	0.0157	-0.1817*	-0.1763	0.0493	0.0136	0.0464	0.0450
	(0.0258)	(0.0130)	(0.1134)	(0.3599)	(0.0310)	(0.0093)	(0.0349)	(0.0353)
Economic:								
Inflation	0.1817***	0.0018	0.2283***	0.0946				
	(0.0153)	(0.0094)	(0.0236)	(0.0699)				
Unemployment rate					-0.0402	-0.0240*	-0.1768*	-0.1796
					(0.0307)	(0.0127)	(0.1098)	(0.1153)
Terms of trade	-	-0.0042*	-	-0.0188	-0.0075	-0.0017	-0.0081	-0.0078
	0.0160***	(0.0026)	0.0162***	(0.0214)	(0.0073)	(0.0018)	(0.0180)	(0.0184)
	(0.0048)		(0.0065)					
Openness	-0.1158	0.0326	-0.0290	0.2015	-0.1687	-0.0099	-0.1961	-0.1928
	(0.1000)	(0.0357)	(0.1180)	(0.2920)	(0.1062)	(0.0196)	(0.1657)	(0.1665)
Exchange rate	-0.0090**	-0.0026*	-0.0108*	-0.0138	0.0171**	0.0010	0.0138	0.0142
	(0.0042)	(0.0015)	(0.0058)	(0.0135)	(0.0085)	(0.0015)	(0.0171)	(0.0171)
Economic growth	-	-	-	-1.9646***	0.7199***	0.0374	0.7765***	0.7703***
	1.3234***	0.1984***	2.0808***	(0.3057)	(0.1157)	(0.0325)	(0.2230)	(0.2268)
	(0.0832)	(0.0332)	(0.1289)					
Others:								
Germany	0.1723	0.1694***	0.4472*	0.0175	-0.0900	0.0652	0.0956	0.0835
	(0.1593)	(0.0638)	(0.2550)	(0.4288)	(0.1199)	(0.0413)	(0.2019)	(0.2205)
Constant	0.5160	0.1579***	1.1188***	0.7381	0.3598***	0.0995***	0.5916	0.5627
	(0.0953)	(0.0527)	(0.2746)	(0.9258)	(0.1080)	(0.0395)	(1.002)	(1.0476)
Y_{t-1}	0.9261	0.0921***	0.8614***	0.9374***	0.6989***	0.0509***	0.5001***	0.5013***
	(0.0072)	(0.0027)	(0.0127)	(0.0406)	(0.0206)	(0.0096)	(0.0814)	(0.0838)
Country effects:								
Australia			0.0390	0.1217			-0.9977	-0.96417
			(0.2157)	(0.6257)			(0.8943)	(0.8975)
Austria			-0.3366	0.1433			0.1214	0.1351
			(0.2196)	(0.5766)			(0.4470)	(0.4571)
Belgium			0.3887*	-0.1537			-1.7764	-1.7524
			(0.2202)	(0.6499)			(1.1191)	(1.1096)
Bulgaria			0.3820	-0.8326			-1.3484	-1.3376
			(0.4333)	(1.3707)			(1.6407)	(1.6347)
Canada			0.6260***	0.8104			-1.0595	-1.0290
			(0.2393)	(0.6830)			(1.0859)	(1.1071)
Cyprus			0.6615*	1.6457***			-0.0849	-0.0563
			(0.3751)	(0.6335)			(0.5473)	(0.6437)
Czech Republic			0.2273	0.3747			-0.5593	-0.5422
			(0.2552)	(0.7325)			(0.9420)	(0.9538)
Denmark			-0.1688	-1.3341*			-1.9933	-1.9996
			(0.2348)	(0.7830)			(1.4920)	(1.5193)
Estonia			0.4636	0.7878			-0.1678	-0.1332
			(0.4864)	(0.9004)			(0.9422)	(1.0126)
Finland			0.4611*	-1.7268*			-4.0469*	-4.0265*
			(0.2506)	(1.0032)			(2.4756)	(2.4838)
France			0.8037***	2.0213***			-2.5307*	-2.4484
			(0.2545)	(0.7953)			(1.5406)	(1.5964)
Greece			0.7412**	0.3622			0.2256	0.2357
			(0.3136)	(0.5982)			(0.5407)	(0.5415)

Hungary			0.3316	0.3320			-1.0129	-0.9941
			(0.3766)	(1.0843)			(1.3986)	(1.4064)
Ireland			0.6351**	-0.5915			-0.7763	-0.7783
			(0.2590)	(0.7532)			(0.9508)	(0.9537)
Italy			0.5347**	0.9308			-1.3980	-1.3685
			(0.2501)	(0.7159)			(1.1437)	(1.1440)
Japan			0.1310	-1.4813*			0.0872	0.0355
			(0.2485)	(0.8579)			(0.6829)	(0.8149)
Latvia			0.6818	0.5153			0.2270	0.2510
			(0.5022)	(1.0382)			(0.9489)	(1.0017)
Lithuania			0.8689	0.5246			-0.4704	-0.4469
			(0.6238)	(1.1514)			(1.1478)	(1.1775)
Luxembourg			0.5731**	0.2927			-3.1252	-3.0681
			(0.2929)	(0.9652)			(2.0956)	(2.0841)
Malta			-0.0723	1.5958**			-0.2899	-0.2286
			(0.2538)	(0.7153)			(0.6271)	(0.8578)
Netherlands			0.1925	-0.8648			-2.0586	-2.0517
			(0.2059)	(0.6445)			(1.3909)	(1.3968)
Norway			-0.3293*	-3.1046***			-3.3220	-3.3511
			(0.1987)	(1.0969)			(2.2487)	(2.3537)
New Zealand			-0.1461	-1.0856			-1.1430	-1.1356
			(0.2404)	(0.8112)			(1.2170)	(1.2166)
Poland			0.8126*	0.8686			0.1663	0.1988
			(0.4594)	(0.9646)			(0.9201)	(0.9912)
Portugal			0.4471*	-0.9268			-3.6605	-3.6177
			(0.2716)	(1.0097)			(2.5152)	(2.4955)
Romania			-0.3738	-1.7335			-2.8791	-2.8716
			(0.3960)	(1.6292)			(2.7365)	(2.7472)
Slovakia			0.8223**	-0.4477			-0.9414	-0.9297
			(0.3940)	(1.2564)			(1.3936)	(1.3887)
Slovenia			0.3596	0.1080			-1.8264	-1.8049
			(0.2724)	(0.9727)			(1.4832)	(1.4774)
Spain			2.3040***	1.0286			-3.0707	-3.0255
			(0.4521)	(1.2026)			(2.0098)	(1.9934)
Sweden			-0.3253	-0.8254			-0.6981	-0.7110
			(0.2366)	(0.6813)			(0.8143)	(0.8467)
Switzerland			-0.3607*	-0.8078			0.1470	0.1111
			(0.1957)	(0.6022)			(0.4433)	(0.5194)
UK			-0.3364	-0.4032			-0.7064	-0.6824
			(0.2168)	(0.6585)			(1.0053)	(1.0067)
USA			0.0035	-0.1218			-0.1534	-0.1375
			(0.2500)	(0.7434)			(0.8265)	(0.8465)
N x T	1209	1200	1198	1198	1205	1200	1198	1198
F-statistic	2054.450	1849.435	518.3274	5672557	100.8123	100.7110	27.0392	26.5392
Prob (*F*-Statistic)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Instrument rank		14	48	49		14	48	49
Prob (*J*-statistic)		0.0713	0.0000	0.1933		0.9873	0.7263	0.8853
R-squared	0.9572				0.5239			

Note: Dependent on the model and dependent variable different estimation strategies are used: OLS or TSLS (union authority as instrument), panel-corrected and cross-section weighted standard errors (in parentheses). On basis of different models and estimation strategies presentational adjustments were made which includes that different validity indicators are presented. Variables are lagged by one year. In all FE models country dummies are included and Germany - as an example of a country with no changes - is used reference. ***$\alpha \leq .01$; ** $\alpha \leq .05$, * $\alpha \leq .1$. *N x T*: number of observations. Data source: interpolated collective bargaining and labour relations from Visser (2017) and economic variables from European Commission (2017).